

What is claimed is:

1. A hydraulic accumulator of the liquid-gas type, comprising a rigid housing defining an internal chamber and a gas port and a liquid port; a gas charging valve disposed in said gas port to control the admission of high pressure gas; a deformable, semi-permeable separator disposed within said housing to separate said internal chamber into a gas chamber in communication with said gas port, and a liquid chamber in communication with said liquid port; characterized by:
 - (a) means disposed within said liquid chamber for receiving and collecting gas which passes from said gas chamber, through said semi-permeable separator, into said liquid chamber; and
 - (b) conduit means having one end in fluid communication with said gas collecting means, and another end operably associated with said housing to communicate gas from said gas collecting means out of said liquid chamber.
2. A hydraulic accumulator as claimed in claim 1, characterized by said rigid housing is generally cylindrical and horizontally elongated, said gas port being disposed at one axial end of said housing, and said liquid port being disposed at the other axial end of said housing.
3. A hydraulic accumulator as claimed in claim 2, characterized by said semi-permeable separator comprising an elongated, generally cylindrical, elastically-deformable bladder defining therein said gas chamber, and having one end thereof fixed relative to said rigid housing adjacent said gas charging valve.

4. A hydraulic accumulator as claimed in claim 3, characterized by said generally cylindrical bladder being generally centrally disposed within said internal chamber defined by said rigid housing; said bladder being surrounded by said liquid chamber under most operating conditions of said accumulator.
5. A hydraulic accumulator as claimed in claim 4, characterized by said gas collecting means being elongated, and extending axially over at least a major portion of the axial length of said internal chamber, and being disposed above said bladder when said accumulator is in its operational position.
6. A hydraulic accumulator as claimed in claim 1, characterized by said means for receiving and collecting gas comprises a transfer membrane including a gas storage portion through which gas can travel when said transfer membrane is subjected to normal operating pressures in said liquid chamber.
7. A hydraulic accumulator as claimed in claim 6, characterized by said transfer membrane includes a layer of material which is generally permeable to said gas in said gas chamber, while being generally impermeable to liquid, said layer of material being disposed between said gas chamber and said gas storage portion of said transfer membrane.

8. A hydraulic accumulator of the liquid-gas type, comprising a rigid housing defining an internal chamber and a gas port and a liquid port; a gas charging valve disposed in said gas port to control the admission of high pressure gas; a deformable, semi-permeable separator disposed within said housing to separate said internal chamber into a gas chamber in communication with said gas port, and a liquid chamber in communication with said liquid port; characterized by:
 - (a) means disposed within said liquid chamber for receiving and collecting gas which passes from said gas chamber, through said semi-permeable separator, into said liquid chamber, said means comprising said rigid housing having disposed therein a liner, including at least a portion of which is semi-permeable with respect to said gas; and
 - (b) conduit means having one end in fluid communication with said gas collecting means, and another portion operably associated with said housing to communicate gas from said gas collecting means, said conduit means comprising said rigid housing being formed from a porous filament material which is semi-permeable with respect to said gas .
9. A hydraulic accumulator as claimed in claim 8, characterized by said liner comprising a material which is substantially impermeable with respect to said liquid, but generally permeable with respect to said gas.